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| EXAMINER |
|---|
| COMLEY, ALEXANDER BRYANT |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

tammy@ppglaw.com

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *21 April 2009*.

2a)☐ This action is FINAL.  2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *6-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 April 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All  b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *4/21/2009*.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

## DETAILED ACTION

### Continued Examination Under 37 CFR 1.114

1.     A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection.  Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114.  Applicant's submission filed on April

21st, 2009 has been entered.


### Status of the Claims

2.     The Examiner acknowledges receipt of Applicant's amendments, remarks, and

arguments filed with the Office on April 21st, 2009 in response to Final Office Action

mailed by the Office on January 21st, 2009. Per Applicant's response, Claims 6-10 and

12-13 have been amended, while Claims 14-23 have been newly-added.  Claims 1-5

remain cancelled due to a prior amendment.  Therefore, Claims 6-23 are now pending

in the instant application.   The Examiner has carefully considered each of Applicant's

arguments and amendments, and they will be addressed below.


### Claim Rejections - 35 USC § 103

3.     The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.      The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

> 1.      Determining the scope and contents of the prior art.
> 2.      Ascertaining the differences between the prior art and the claims at issue.
> 3.      Resolving the level of ordinary skill in the pertinent art.
> 4.      Considering objective evidence present in the application indicating
>         obviousness or nonobviousness.

**Claims 6-8, 10-12, 14-20, and 22-23** are rejected under 35 U.S.C. 103(a) as

being unpatentable over United States Patent No. 5,209,076 to Kauffman et al. directed

to a Control System for Preventing Compressor Damage in a Refrigeration System in

view of United States Patent Application Publication No. 2002/0141877 to Jayanth et al.

directed to a Compressor Diagnostic System.

Regarding Independent **Claims 6, 10, and 18**, Kauffman discloses a

microprocessor-based compressor control device (i.e. computer readable medium) that

detects abnormalities in a compressor's operation through implementation of a control

method.  To begin, Kauffman discloses sensed conditions (i.e. measured parameters),

manually entered data (i.e. a safety range), and reference parameters stored in a

database (i.e. timeout periods) by stating, "If a sensed condition is outside of a safety

range and remains there for a time out period, an alarm condition is indicated and the

device generates an alarm signal and shuts down the compressor." (Abstract)  From

this disclosure alone, it can be seen that the monitoring system of Kauffman utilizes 1)

Measured Parameters (i.e. sensed condition); 2) Manually-Entered Data (i.e. a safety

range); and 3) Reference Parameters (i.e. time out periods).  Kauffman further discloses

measured parameters and manually-entered parameters by stating, "In accordance

with the invention, a microprocessor based monitoring device makes use of <u>sensors</u>

<u>which detect various conditions</u> at selected locations in a refrigeration system. Pressure

and temperature sensors on the suction side of the compressor provide information that

allows the superheat to be computed. <u>High and low safety limits</u> for the superheat of the

particular refrigerant <u>can be entered</u>. If the actual superheat falls outside of the

programmed safety range, the compressor is automatically shut off and alarm signals

are generated to indicate the presence of problem conditions." (Column 1, Line 64 –

Column 2, Line 6) Applicant's third set of parameters (the reference parameters) are

disclosed by Kauffman's "timeout periods".  Applicant does not define in the claims

exactly what the reference parameters correspond to; merely that they "relate to the

operating state of the compressor".  Therefore, Kauffman's timeout periods, which

directly relate to whether or not a compressor abnormality is detected (i.e. the operating

state), are considered reference parameters indicating the operational state of the

compressor.  In regards to these timeout periods, Kauffman states "Additional sensors

monitor conditions such as the compressor discharge pressure and temperature, motor

current draw and oil pressure. Again, safety limits are entered and the device

automatically shuts down the compressor and provides an alarm signal if the system is

operating outside of a safe operating range with respect to any of the conditions that are

being monitored. In order to prevent aberrational or transient conditions from shutting

down the compressor, <u>each parameter that is being monitored is given a time out period</u>

during which an abnormal condition must continue before shut down occurs." (Column

2, Lines 7-19) Kauffman even goes on to state "In block 126, various time out periods

are set at preprogrammed initial values. For example, an amperage high limit timer, a

superheat start delay timer, an oil pressure low limit timer, a discharge temperature high

limit timer and a discharge pressure high limit timer are all set at initial values which are

either programmed at the factory or in the field through entries made on the key pad. "

(Column 5, Lines 46-53)  From this disclosure, it can be seen that a user can program

various timeout periods for varying operating conditions relating to the compressor in

order to accurately and efficiently protect the compressor from abnormal operation

conditions.  Kauffman also discloses utilizing the monitoring system to read operating

parameters from a design program to insure a compressor's adherence to observed

operating trends (i.e. design specifications).  In particular, Kauffman states "The device

of the present invention can be incorporated as an original part of the refrigeration

system, it an be added as an after market item permanently installed on an existing

refrigeration system, or it can be used as a portable service tool which can be

temporarily attached to different refrigeration systems in order to obtain representative

samples of the operating characteristics. The data can be collected over an extended

time period to indicate any trends that may be present." (Column 2, Lines 36-40)

Kauffman goes on to say "Alternatively, the device can be provided as a portable

servicing tool which can be temporarily attached to a refrigeration system in order to

monitor its operation for a pre-selected time period such as a one or two day period to

determine if there are any operating irregularities. By providing for the field

programming of the limits and time out periods, users can customize the device (i.e.

design) in the field to conform with different types of cooling systems which may require

different limits and time out periods. Consequently, the device is adapted for use with a

wide variety of different types and sizes of mechanical cooling systems." (Col. 10, Lines

3-15) Hence, Kauffman's system utilizes design specifications (i.e. operating

characteristics) in another comparison in order to determine if the compressor system is

functioning properly relative to other comparable compressor systems.  Kauffman goes

on to disclose utilizing these design specifications in a design program (i.e. graph, etc)

by stating "For example, each condition can be sensed every ten minutes over a period

of five days, and the data can be presented in the form of a graph or in any other

meaningful format." (Column 2, Lines 41-44)  This disclosure shows that Kauffman's

monitoring system can read parameters (i.e. limits and time out periods) that are

calculated by design programs and/or graphs in order to provide a great degree of

versatility to the compressor.  To conclude, from the disclosures listed above, it is

apparent that multiple comparisons are repeatedly completed (as is apparent from the

use of varying timeout periods for different compressor parameters) between the four

types of compressor parameters in order to efficiently detect abnormalities over the

span of the compressor's operation (Applicant does not specify when the first and

second comparisons are done in relation to one another).  However, although Kauffman

discloses the majority of claimed elements present in Applicant's independent claims, it

fails to substantially and specifically disclose a database of previously stored anomalies.

However, the Jayanth et al. portion of the combination successfully discloses the

final remaining element missing from the Kauffman reference.  In particular, Jayanth

discloses a compressor diagnostic system for use in a refrigeration or air conditioning

system that is designed to detect faults in the compressor and alert the user to the exact

nature and cause of the fault from a pre-loaded database of faults.  To begin, Jayanth

states "The present invention provides a device which is based on this principle. The

device of the present invention continuously records the status of the protector (open or

closed) as a function of time and then it analyzes this status information to determine a

faulty situation. The device goes further and isolates the fault to either the compressor

or to the rest of the system. Once the fault has been isolated, the device will activate a

visual indicator (light) and it will also send an electrical signal to any intelligent device

(controller, computer, etc.) advising about the situation." (Paragraph 6)  More

specifically, Jayanth states "Logic circuitry 104 analyses the combination of current

signals, the demand signal and the derived protector trip frequencies to determine if a

fault condition exists. Logic circuitry also has the unique capability of identifying a

specific cause based on some faults." (Paragraph 29)  Most importantly, however, is

Jayanth's specific disclosure regarding a plurality of stored fault codes that are

detected and displayed by the monitoring system in order to accurately tell a technician

the characteristics of the fault.  In particular, Jayanth states "This scheme of the

blinking of light 112 for a specific number of times is employed to visually communicate

to the technician the various types of faults detected by logic circuitry 104. While the

present invention utilizes blinking light 112 to convey the fault codes, it is within the

scope of the present invention to utilize a plurality of lights to increase the effectiveness

of conveying a large number of fault codes if desired." (Paragraph 30)  Both Kauffman

and Jayanth are specifically aimed at protecting compressors from faults and/or

operational anomalies in order to increase compressor life.  Therefore, to one of

ordinary skill desiring a longer-lasting compressor system, it would have been obvious

to utilize the techniques disclosed in Kauffman in combination with those seen in

Jayanth in order to obtain such a result.  Consequently, it would have been obvious to

one of ordinary skill in the art at the time of the invention to modify the monitoring

system of Kauffman with the database of predetermined faults seen in Jayanth in order

to obtain predictable results; those results being a better-protected compressor system

that accurately alerts a user to the nature of the fault.


5.      In regards to dependent **Claims 7-8, 11-12, & 19-20**, the Kauffman portion of the

combination specifically discloses utilizing the monitoring system to insure a

compressor's adherence to observed operating trends (i.e. design specifications).  In

particular, Kauffman states "The device of the present invention can be incorporated as

an original part of the refrigeration system, it can be added as an after market item

permanently installed on an existing refrigeration system, or it can be used as a portable

service tool which can be temporarily attached to different refrigeration systems in order

to obtain representative samples of the operating characteristics. The data can be

collected over an extended time period to indicate any trends that may be present."

(Column 2, Lines 36-40)  Hence, Kauffman's system utilizes design specifications (i.e.

operating characteristics) in another comparison in order to determine if a particular

compressor system is functioning similarly to other comparable systems. Kauffman

goes on to disclose utilizing these design specifications in a design program (i.e. graph,

etc) by stating "For example, each condition can be sensed every ten minutes over a

period of five days, and the data can be presented in the form of a graph or in any other

meaningful format." (Column 2, Lines 41-44)  This disclosure shows that Kauffman's

monitoring system can read parameters (i.e. limits and time out periods) that are

calculated by design programs and/or graphs in order to provide a great degree of

versatility to the compressor.   Regarding dependent **Claims 14, 16, & 22**, the

comparisons done by the Kauffman's monitoring system are done repeatedly (as is

apparent from the use of multiple timeout periods for different compressor parameters)

while the compressor is operating, thereby providing a large number of independent

comparisons throughout the compressor's operation (It is important to note that

Applicant does not specify when the first and second comparisons are done in relation

to one another).  In regards to dependent **Claims 15, 17, & 23**, Kauffman specifically

discloses the use of displays to show the presence of compressor faults by stating "A

detachable display module includes a keypad for carrying out field programming and a

LCD screen for displaying the refrigerant conditions and programming prompts and

commands." (Abstract)  Kauffman goes on to say "Preferably, the device includes a

display such as a liquid crystal display, along with a key pad for entering program

commands and functions and LED indicators for identifying alarm conditions. The data

can be displayed on the LCD screen on the unit, it can be printed out by a printer, or it

can be transmitted via a modem over telephone lines to allow display on a remote

computer screen. Alternatively, the unit can be programmed to automatically dial a

programmed telephone number in the event of a compressor shut down so that

appropriate personnel are alerted to the problem and can take whatever corrective

action is indicated under the circumstances." (Col. 2, Lines 45-58)  Therefore, to one of

ordinary skill desiring a more efficient compressor system, it would have been obvious

to utilize the techniques disclosed in Kauffman in combination with those seen in

Jayanth in order to obtain predictable results (i.e. a compressor that operates within

spec).


6.      **Claims 9, 13, & 21** are rejected under 35 U.S.C. 103(a) as being unpatentable

over United States Patent No. 5,209,076 to Kauffman et al. in view of United States

Patent Application Publication No. 2002/0141877 to Jayanth et al as applied to claims

6-8 and 10-12 above, and further in view of United States Patent No. 6,448,982 to

Klapper et al. directed to a System for Graphically Generating Logic for a Cause and

Effects Matrix..

        The Klapper et al. portion of the combination discloses the use of a "cause-and-

effect" matrix for use in a monitoring system.  Moreover, Klapper specifically discloses a

matrix database and corresponding digital computer by stating "The system includes a

general purpose digital computer that incorporates a matrix programming tool to input

data defining the matrix and generate a matrix database. The tool also transfers the

matrix database to a programmable logic controller." (Abstract)  Furthermore, with

particular reference to Figure 1 of Klapper, it can be seen the multiple critical limits are

placed in each row of the matrix with corresponding descriptions of the specific

corresponding anomalies.  Some examples of Klapper's system anomalies include high

process flow and high or low fuel pressures.  Klapper goes on to describe the structure

of the control matrix by stating "The present invention enables a user to graphically

create and configure a matrix with data that defines input elements or variables that

require monitoring, output responses to changes in the input elements/variables, also

referred to as input parameters, being monitored and the relationship between the input

elements/variables and the output responses. Once the matrix is created, the user can

transfer the defining data to a programmable logic controller 78 to generate logic to

implement the matrix. The programmable logic controller 78, as illustrated in FIG. 2 may

comprise a central processing unit 7, an input device 9, an output device 11, and a

memory element 13. The memory element 13 may be a combination of read only

memory (ROM) and random access memory (RAM)." (Column 3, Lines 40-53)  Klapper

further states that a user can add specific anomalies to the matrix in order to monitor

various desired aspects of the system.  Therefore, to one of ordinary skill desiring a

more accurately controlled compressor system, it would have been obvious to utilize the

techniques disclosed in the Kauffman-Jayanth combination in combination with those

seen in Klapper et al in order to obtain such a result.  Consequently, it would have been

obvious to one of ordinary skill in the art at the time of the invention to modify the

monitoring system of the Kauffman-Jayanth combination with the anomaly-specific

matrix of Klapper et al. in order to obtain predictable results; those results being a more

accurately controlled compressor system that monitors specific anomalies.

***Response to Arguments***

7.      Applicant's arguments filed on April 21st, 2009 have been fully considered but they are not persuasive. The Examiner's responses can be seen below.


8.      In regards to Applicant's argument that Kauffman's timeout periods are not compressor parameters that relate to the operational state of the compressor, the Examiner must respectfully disagree.  As stated above, Kauffman's system specifically uses various timeout periods for a plurality of compressor operating parameters in order to accurately and efficiently regulate the compressor's operation.  The timeout periods that are utilized in the monitoring system are compared with the actual amount of time that an abnormal measured parameter or sensed condition remains outside the manually entered safety range.  Assuming the parameter lasts longer than the timeout period, the system reacts appropriately and shuts down the compressor.  It is in this way that the timeout periods are compared with the measured and manually-entered parameters of the compressor.  The fact that the timeout periods are arbitrary values or not is not relevant to the claim, as Applicant does not claim that they must be otherwise.


9.      In regards to Applicant's argument that Kauffman's system does not disclose a second comparison, the Examiner must respectfully disagree.  As stated above, multiple comparisons are repeatedly completed (as is apparent from the use of varying timeout periods for different compressor parameters) between the four types of compressor parameters in order to efficiently detect abnormalities during the

compressor's operation. The Examiner must assert that Applicant does not specify when the first and second comparisons are performed in relation to one another. Moreover, Kauffman discloses the use of multiple timeout periods for different compressor parameters by stating "In order to prevent aberrational or transient conditions from shutting down the compressor, each parameter that is being monitored is given a time out period during which an abnormal condition must continue before shut down occurs." (Col. 2, Lines 14-19) Therefore, because the compressor monitoring system monitors a plurality of compressor parameters using different timeout periods for each, it is clear that more than two comparisons are done with the monitoring system of Kauffman. Hence, first and second comparisons are performed in Kauffman.

10.     In regards to Applicant's argument that Kauffman does not disclose the act of obtaining design specifications from a design program, the Examiner must respectfully disagree. As stated above, Kauffman discloses utilizing the monitoring system to read operating parameters from a design program to insure a compressor's adherence to observed operating trends (i.e. design specifications). In particular, Kauffman begins by stating, "The device of the present invention can be incorporated as an original part of the refrigeration system, it an be added as an after market item permanently installed on an existing refrigeration system, or it can be used as a portable service tool which can be temporarily attached to different refrigeration systems in order to obtain representative samples of the operating characteristics. The data can be collected over an extended time period to indicate any trends that may be present." (Column 2, Lines

36-40) Kauffman goes on to say "Alternatively, the device can be provided as a portable servicing tool which can be temporarily attached to a refrigeration system in order to monitor its operation for a pre-selected time period such as a one or two day period to determine if there are any operating irregularities. By providing for the <u>field programming of the limits and time out periods</u>, users can <u>customize the device</u> (i.e. design the device) in the field to conform with different types of cooling systems which may require different limits and time out periods. Consequently, the device is adapted for use with a <u>wide variety</u> of different types and sizes of mechanical cooling systems." (Col. 10, Lines 3-15) Hence, Kauffman's system utilizes design specifications (i.e. operating characteristics) in another comparison in order to determine if the compressor system is functioning properly relative to other comparable compressor systems. Kauffman goes on to disclose utilizing these design specifications in a graph (i.e. design program) by stating "For example, each condition can be sensed every ten minutes over a period of five days, and the data can be presented in the form of a graph or in any other meaningful format." (Column 2, Lines 41-44)  The Examiner must therefore assert that this disclosure shows that Kauffman's monitoring system reads parameters (i.e. limits and time out periods) that are calculated by design programs and/or graphs (generated through compressor sampling) in order to provide a greater degree of versatility to the compressor.

### *Conclusion*

11.     Any inquiry concerning this communication or earlier communications from the

examiner should be directed to ALEXANDER B. COMLEY whose telephone number is

(571)270-3772.  The examiner can normally be reached on M-F 7:30am - 5:00am EST

(Alternate Fridays Off).  If attempts to reach the examiner by telephone are

unsuccessful, the examiner's supervisor, Devon C. Kramer can be reached on (571)-

272-7118.  The fax phone number for the organization where this application or

proceeding is assigned is 571-273-8300.

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


/Alexander B Comley/                              /Charles G Freay/
Examiner, Art Unit 3746                           Primary Examiner, Art Unit 3746

ABC